**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**REGION 10**
1200 Sixth Avenue
Seattle, WA 98101

Reply To
Attn Of: ECL-115

March 7, 2007

Tom Gainer
DEQ Northwest Region
Portland Harbor Section
2020 SW Fourth Ave., Suite 400
Portland, OR 97201

RE: EPA Comments on the January 2007 Storm Water Monitoring Work Plan (Revision No. 1) for GE Energy – GE Services Portland Inspection & Repair Service (I&RS) Center, Portland, Oregon (6-61M-112867 Phase 4)

Dear Mr. Gainer:

Thank you for allowing EPA to comment on the above referenced document (the Work Plan); we have reviewed the document for environmental protection improvement expected from the proposed work and consistency with other work being performed within the Portland Harbor Superfund site. We provide the following comments for you to consider in approving this Work Plan. In order to keep these comments short, we provide reference to the recently approved LWG Final Round 3A Stormwater FSP that may be found at the EPA Region 10 website for Portland Harbor under Technical Documents for the Harbor Wide RI/FS (http://yosemite.epa.gov/R10/CLEANUP.NSF/ph/Technical+Documents) that provides an example of the information that is lacking in this Work Plan.

## General Comments

1. The Work Plan needs to be clear that samples will be collected during the wet-weather period, which is October through May in the greater Portland area.
2. The Work Plan needs a section that describes the sampling organization, responsible personnel, and schedule. (Refer to Sections 4.1 and 4.5 of the LWG Final Round 3A Stormwater FSP.)

# Specific Comments

**Section 2.0**

3. Page 3, Section 2.2. This section states that this sampling is a result of a DEQ request, but does not adequately describe the purpose of this sampling. There should be more historical information about samples taken (location and concentration) that led to this Work Plan and support the BMPs that were implemented.

**Section 3.0**

4. The Work Plan does not have a section that discusses Flow and Rain Data Collection. (Refer to Section 3.4.3 of the LWG Final Round 3A Stormwater FSP.)
5. The Work Plan needs a section that discusses Equipment Maintenance. (Refer to Section 3.9 of the LWG Final Round 3A Stormwater FSP.)
6. The Work Plan needs a section that generally discusses equipment and supplies, but refers the reader to the appropriate SOP in Appendix A for specific information. (Refer to Section 3.2 of the LWG Final Round 3A Stormwater FSP.)
7. The Work Plan needs to discuss the process for optimizing the automated samplers. Additional protocols that describe how the samplers will be preprogrammed must be provided. EPA does not expect a full detailed description of sampler programming; however, additional refinements to the sampling protocol as necessary to ensure that the most representative sample possible is being collected should be provided. (Refer to Section 2.1.1 of the LWG Final Round 3A Stormwater FSP.)
8. Field Laboratory areas should be established for compositing and field measurements to prevent field contamination and establish better controls for field activities.
9. Page 4, Section 3.1.1. In addition to the JSCS storm event criteria listed in this section, the LWG Final Round 3A Stormwater FSP has an additional requirement to "not exceed 2.25 inches in a 24-hour period." The purpose for this is that they are flow-weighting the composite and too much sample would be collected in a short duration and would not adequately represent the hydrograph.
10. Page 4, Section 3.1.1, last paragraph, 3rd sentence. This sentence states that the time storm water discharge begins will be recorded, but does not state how it will be recorded. The Work Plan needs to clarify how the start time will be recorded.
11. Page 4, Section 3.1.1, last paragraph, 4th sentence. This sentence states that sampling will commence within 15 minutes from the time discharge begins; however, Table 1, Footnote 2, states that samples will be collected beginning within the first 30 minutes of the storm event. Please correct this discrepancy.
12. Page 4, Section 3.1.1, last paragraph. It is my understanding that the flow rate will commence the automatic sampler. The Work Plan needs to describe this better and indicate what flow rate will trigger sampling.
13. Page 5, Section 3.1.2, last paragraph. Catch basin samples should be collected at the end of the storm season (i.e., end of May) rather than during a storm event. Since these are newly installed catch basins, enough time needs to pass in order to collect enough solids to conduct the required analysis. The sediments collected in the catch basin would represent solids over a period of time (i.e., from the time installed to the time the sample is collected). The analysis should be prioritized in the event that enough sample is not collected (Refer to comments 21 and 25, below).

14. Page 5, Section 3.2, first paragraph. Why are catch basins monitored during storm events? Is this just to provide additional information regarding field conditions? Please clarify.
15. Page 6, Section 3.4.1. This section needs to be revised to ensure that the compositing scheme produces enough sample volume to conduct the necessary analysis. The minimum sample volume necessary to conduct all necessary analysis would be 5.7 liters: 2.85 liters for filtered and 2.85 liters for unfiltered. Additionally, 5.7 liters would be needed for lab QC and 2.85 liters would be needed for field duplicates or replicates. Please note that these volumes do not include sample volume for PCB Aroclors. (Refer to Table 2-3 of the LWG Final Round 3A Stormwater FSP for Composite Water Samples, excluding phthalates, herbicides and organochlorine pesticides.). Since the minimum storm criteria is 3 hours, the sample compositing scheme should ensure that at least 5.7 liters are collected during this time period.
16. Page 6, Section 3.4.1, first paragraph, 2nd sentence. This sentence states that samples will be collected through **clean tubing** into individual unpreserved **glass bottles**. Please provide the material of the clean tubing and the volume of the glass bottles in the Work Plan.
17. Page 7, Section 3.4.1, first paragraph, 1st full sentence. Since flow rate will be the trigger for starting the composite sampler, I would suggest that the sampling scheme be conducted for a minimum of 3 hours from the commencement of sample collection, rather than for the initial 3 hours of the storm. The reason for this is that the storm may commence, but the flows may not trigger sampling until some time later (e.g., the end of the first hour). This example would result in 3.8 liters (0.95 L x 4-15 minute increments) of sample that would not be collected under the current sampling scheme.
18. Page 7, Section 3.4.1, second paragraph, 2nd sentence. Sampling equipment should be decontaminated ***prior to installation and*** following sample collection at each location.
19. Page 7, Section 3.4.1, third paragraph, 1st sentence. The first reason is really to ***detect constituents of concern at or below*** the proposed screening level values. A third reason could also be included to ensure that enough sample volume was available to analyze for all constituents of concern.
20. Page 7, Section 3.4.1, third paragraph, 3rd sentence; 4th sentence; and last paragraph, 2nd sentence. The Work Plan proposes to use a 0.1 micron PVDF filter; however, the LWG Final Round 3A Stormwater FSP is using a 0.45 micron filter. While the 0.1 micron filter would filter more colloids that may be present in the sample, the methodology should be the same as for other sites for better comparability of data. Therefore, EPA suggests that a 0.45 micron filter be used to filter storm water samples.
21. Page 7 and 8, Section 3.4.1, bullets. The methods used for analysis should be comparable to analysis being conducted by other sites. Therefore, the methods stated in this section should be updated to those listed in the LWG Final Round 3A Stormwater FSP. Additionally, I would suggest that this be put into a table in the document that is referenced in the text to ensure that typographical errors do not occur in stating the analyte and method of analysis. I also suggest that the analytes be placed in order of importance in the event that there is not enough sample to analyze for all constituents. (Refer to Table 2-4a of the LWG Final Round 3A Stormwater FSP.) My preference for priority of storm water samples at this site would be: (1) TSS; (2) TOC/DOC; (3) PCB

congeners; (4) PAHs; (5) phthalates; (6) TPH-DRO; (7) TPH-HRO; (8) metals; (9) PCB aroclors.

22. Page 7 and 8, Section 3.4.1, bullets. Phthalates are not included in this list. If phthalates are in fact to be collected, the Work Plan needs to describe the methodology that will be used during sample collection to minimize contaminating the sample with phthalates (e.g., appropriate sample bottle, appropriate sample tubing, equipment blanks, etc.). Additionally, the QAPP should address how the laboratory will minimize contaminating the sample with phthalates during analytical procedures.
23. Page 8, Section 3.4.1, second paragraph after bullets, last sentence. For evaluation purposes, the difference between the total and dissolved metals concentration is considered the ***concentration of the*** total solids fraction of constituents present in the storm water sample. The TSS concentration represents the total solids fraction in storm water.
24. Page 8, Section 3.4.2, third paragraph. If catch basin samples are collected when there is standing water over the solids, what methodology will be employed to ensure that the sample is representative and that solids of concern (i.e., fines) are not suspended in the standing water and not collected? How will the sample be dewatered/dried?
25. Page 8 and 9, Section 3.4.2, bullets. The methods used for analysis should be comparable to analysis being conducted by other sites. Therefore, the methods stated in this section should be updated to those listed in the LWG Final Round 3A Stormwater FSP. Additionally, I would suggest that this be put into a table in the document that is referenced in the text to ensure that typographical errors do not occur in stating the analyte and method of analysis. I also suggest that the analytes be placed in order of importance in the event that there is not enough sample to analyze for all constituents. (Refer to Table 2-4b of the LWG Final Round 3A Stormwater FSP.) My preference for priority of storm water samples at this site would be: (1) TSS; (2) TOC/DOC; (3) PCB congeners; (4) PAHs; (5) phthalates; (6) TPH-DRO; (7) TPH-HRO; (8) metals; (9) PCB aroclors.
26. Page 10, Section 3.5.2, first paragraph, 1$^{st}$ full sentence. The Work Plan should describe how the sample containers will be stored to ensure that the integrity of the "clean" bottle is maintained.
27. Page 10, Section 3.5.3. This section is titled "Sample Preservation and Holding Times" yet there is no discussion of holding times in this section.
28. Page 10, Section 3.5.3, second paragraph, 3$^{rd}$ sentence. The Work Plan should reference Section 3.6.3 after the chain-of-custody protocol to direct the reader to where this discussion is located. Additionally, this sentence states that samples will be transported to the contract laboratory as soon as possible after field activities; however, in Section 3.5.4 under ***Sample Storage*** it states that samples may be placed in a secure storage location. The Work Plan should consistently describe the chain-of custody process. Additionally, the Work Plan should discuss length of time that the sample would remain in storage and how it will be ensured that the stored samples are maintained at 4 degrees Celsius during sample storage.
29. Page 10, Section 3.5.4. The Work Plan does not describe how samples will be labeled/identified.

30. Page 10, Section 3.5.4, ***Sample Packaging***. Individual glass sample containers should also be placed in Ziplock® bags to ensure integrity of the sample label in the event that the melted ice should leak into the courier container (e.g., cooler).
31. Page 11, Section 3.6.1, second bullet. ***All activities***, not just Site activities not covered under regular activities, occurring in the area during sampling should be documented.
32. Page 11, Section 3.6.1, bullets. In addition to the items listed, the following information needs to be documented in the filed logbook:
    - Factors that may affect the quality of the data.
    - Names of field personnel collecting and logging samples.
    - Observations made during sample collection.
33. Page 13, Section 3.7. This section needs additional discussion on equipment decontamination and should include discussion of sample containers. (Refer to Section 3.3 of the LWG Final Round 3A Stormwater FSP.)
34. Page 13, Section 3.7, 1st sentence. The current wording indicates that equipment will not be decontaminated prior to first use; therefore, I suggest using the word "before" rather than "between."

**Section 4.0**

35. Page 13, Section 4.1.1. The Work Plan needs to describe the acceptable frequencies and the methodology for collecting the field replicates and duplicates. Additionally, this section does not describe how precision associated with contamination of the sample will be assessed. (Refer to Section 1.3 of the LWG Final Round 3A Stormwater FSP.)
36. Page 14, Section 4.1.1, 2nd full sentence. The Work Plan should indicate that precision is also measured by matrix spike duplicates.
37. Page 14, Section 4.1.2. The Work Plan needs to discuss how bias (or accuracy) associated with contamination will be assessed (e.g., equipment rinsate) and how monitoring will be assessed (e.g., Certified Reference Materials). Additionally, the Work Plan needs to describe the frequency of lab method and field rinsate field blanks. Will a field duplicate be collected for catch basin samples? If so, this needs to be discussed in the Work Plan as well. (Refer to Section 1.3 of the LWG Final Round 3A Stormwater FSP.)
38. Page 14, Section 4.1.3. The Work Plan needs to discuss how this measurement performance objective relates to storm water, individual storm events, storm types, and catch basins. (Refer to Section 1.3 of the LWG Final Round 3A Stormwater FSP.)
39. Page 14, Section 4.1.4. The Work Plan needs to discuss how comparability will be maximized. (Refer to Section 1.3 of the LWG Final Round 3A Stormwater FSP.)
40. Page 14, Section 4.1.5. The Work Plan needs to discuss how completeness will be maximized. (Refer to Section 1.3 of the LWG Final Round 3A Stormwater FSP.)
41. Page 15, Section 4.2, last sentence. The text refers to the reporting limit (RL); however, Tables B-4 and B-5 use MRL. The Work Plan needs to be consistent in terminology. Additionally, Tables B-4 and B-5 provide MDLs and MRLs, but do not provide QLs. Since this discussion states that non-detects will represent quantitation limits (QLs), they must be provided in the tables.
42. Page 17, Section 6.2. The Work Plan needs to state when the summary report will be submitted (e.g., 120 days following receipt of analytical results). In addition to the requirements provided, the Sampling Report needs to include a description of each

sampling event, comparison of data to rainfall event goals, the storm hydrographs for storm events sampled, time period representing catch basin data (e.g., date of installation to date of sample event), a description of the specific compositing conducted for each sample event.

43. Page 18, Section 6.2, first bullet. All field documentation should be provided in the report, not just pertinent field documentation which can be subjective. Any deviations from field procedures, field measurements, flow data, and rain gage data should also be included in the Sampling Report.

**Table 1**

44. Field visual observations should also be conducted at the sample collection point.
45. Sample volumes should be given per analyte in order of priority. (Refer to Table 2-3 of the LWG Final Round 3A Stormwater FSP.)
46. Footnote 2 should be rectified with language in Section 3.1.1 (see Comment #11).

**Table 2**

47. The contents of this table need to be updated to include any additional analytes not presented that will be sampled and should be cross checked with those in Table 3-1 of the LWG Final Round 3A Stormwater FSP for consistency (including footnotes).

**Table 3**

48. The contents of this table need to be updated to include any additional analytes not presented that will be sampled and should be cross checked with those in Table 2-6b of the LWG Final Round 3A Stormwater FSP and Table 3-1 of the JSCS for consistency (including footnotes).

**Figure 2**

49. This figure should present abandoned lines that were contributing to historical discharges (i.e., those discharges prior to implementation of BMPs under DEQ VCP program) and location of any seals installed as part of BMP implementation.

**Appendix A**

50. The Work Plan should include SOPs for Flow Measurement and Chain-of-Custody. (Refer to Appendix D and Appendix F of the LWG Final Round 3A Stormwater FSP, respectively.) Additionally, there should be a SOP for the rain gauge that addresses how it works, how data will be obtained, when data will be obtained, how sampled storm event data will be separated from other storm events, frequency data is downloaded, programming procedures, etc.
51. In addition to the Field Sampling Form provided with SOP-1, checklists should be provided for each SOP to ensure that all steps in the SOP are completed and to provide a place for field personnel to document where discrepancies in SOP occurred. (Refer to Appendix E of the LWG Final Round 3A Stormwater FSP.)
52. SOP-1. This SOP does not include discussions on programming procedures for the samplers. (Refer to Appendix A of the LWG Final Round 3A Stormwater FSP.)
53. SOP-1, Section 2.0. The Work Plan (Section 3.0) needs to discuss the purpose of two sampling devices. How will field personnel know which sampler to remove? Will both

samplers be connected to the sampler assembly to be installed on the 8 inch discharge pipe to the manhole? The SOP needs to describe the storm water sampling devices, flow meter, and rain gauge meter being used for this Work Plan. (Refer to Appendix A and Appendix D of the LWG Final Round 3A Stormwater FSP.) Additionally, the equipment list needs to include sample labels and the filed sample form (as well as checklists if these are included in the revision of this Work Plan).

54. SOP-1, Section 3.0. This section should be moved to SOP-4, which seems to be missing from this Work Plan (although the City of Portland SOP for Catch Basin Solids is included at the end of SOP-3).
55. SOP-1, Section 4.0, #8. The field blank should be collected by running de-ionized water through the sampler, not just the tubing. There are other contact points within the sampler that may contaminate the sample, especially for phthalates.
56. SOP-1, Section 6.0, 3rd sentence. I am not sure I agree with the statement that the flow meter readings will provide accurate hydrograph data from the site. This will be dependent on the calibration techniques for the flow meter and the number and types of events that are monitored. Since the Work Plan states that only four (4) sample events will be monitored, I am not convinced that that small of a data set will be able to produce any accuracy of hydrograph data from the site. At best, the flow meters will produce a representation of the flow hydrograph at the time sampling occurred.
57. SOP-1, Section 7.0, 1st sentence. This sentence should clarify that the purpose is to evaluate BMPs implemented at this site.
58. SOP-1, Section 7.1, #2. It should be clarified that the MAV is the total aliquot volume collected that represents a portion of the hydrograph or total discharge volume; ADV is the volume of storm water discharged during the time MAV was collected; and LDV is the total storm water discharged during the sampled storm event.
59. SOP-1, Section 7.1, #3, #4, #5, and #6. For unfiltered samples, this section should present how the occurrence of settleable solids within an individual or composite sample container will be handled during the manual compositing work (e.g., use of churn splitter).
60. SOP-1, Section 7.1. This section needs to discuss sample storage requirements and how long samples can be stored prior to relinquishing to the laboratory.
61. SOP-1, Section 7.1, #6, 2nd sentence. This section needs to provide procedures for appropriate labeling for samples. Additionally, it should be clarified that samples should be placed in a Ziplock® bag prior to placing them in a cooler to maintain the integrity of the sample label during shipment.
62. SOP-2, Section 3.0, **Measurements for Turbidity**. The Work Plan states that field measurements will be conducted on a 200 mL aliquot, not prior to filling sample bottles. Please rectify this difference. Will 200 mL aliquot be collected from each bottle for field measurements? Need to clarify in the Work Plan how this is conducted and representative of the discharge. This section should also present how the occurrence of settleable solids within the sample container will be handled during field measurement to ensure that sample is representative of the discharge.

**Appendix B**

63. The Work Plan needs to adequately describe QA/QC procedures for this sampling event. (Refer to LWG Round 2 Quality Assurance Project Plan Addendum 8: Round 3A

Stormwater Sampling, March 2007, located on EPA's website provided in the body of this letter).

64. Table B-1. This table should provide similar information as that provided in Tables 3-1a and 3-1b of the LWG Final Round 3A Stormwater FSP.
65. Table B-3. This table should provide similar information as that provided in Table 4-2 of the LWG Final Round 3A Stormwater FSP.
66. Table B-4. This table should provide similar information as that provided in Table 2-6b of the LWG Final Round 3A Stormwater FSP. Additionally, footnotes for this table are missing.
67. Table B-5. This table should provide similar information as that provided in Table 2-6a of the LWG Final Round 3A Stormwater FSP.
68. This appendix should provide additional information such as that provided in Tables 2-3, 3-1, 3-2 and 4-1 of the LWG Final Round 3A Stormwater FSP.

If you have any questions regarding this letter or would like to have further discussions regarding this Site, please feel free to contact me at (206) 553-6705.

Sincerely,

Kristine Koch
Remedial Project Manager